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MASSACHUSETTS EXECUTIVE OFFICE OF ELDER AFFAIRS
OMBUDSMAN PROGRAM

COMMON ILLNESS AFFECTING RESIDENTS OF NURSING AND REST HOMES

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Parkinson's Disease

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Parkinson's Disease

Parkinson's disease, described by James Parkinson in 1817, is a nervous disorder that primarily affects the elderly. More than half of all people suffering from Parkinson's Disease (PD) are over tha age of 70,(1) and about 1.0% of the population over age 50 has the symptoms of the disease.(2)

The three major symptoms which doctors use to identify the disorders are tremor, rigidity, and bradykinesia.

Tremors are rapid shaking movements. It often occurs first in the hands then progresses to other parts of the body. The tremor is worse when the affected body part is at rest or when the person is upset or under stress. It becomes better and may disappear entirely when the person moves the body part or during sleep or after a stroke affecting the area. A typical hand tremor is known as the "pill-rolling" movement, because it looks like the patient is rolling something small between the thumb and first finger.

Rigidity results from an increase in muscle tone. A person's muscles are constantly tighter, more contracted. The affected muscles will resist movement, and joints will seem stiff. Rigidity is often called "cogwheel" or "ratchet-like" rigidity because the tremor relaxes it in brief spurts.

Bradykinesia means slowed body movements. There is difficulty moving affected muscles quickly. They are sluggish and slow to respond. The effect of bradykinesia can be seen in the lack of facial expression, the lack of arm swing movements when walking, and the lack of neck movements.

Cause

The cause of Parkinson's Disease is not known. Studies have been done with identical twins where one twin has PD and the other does not. These studies seem to indicate inheritance is not a major factor, but they have also failed to find any other factors that PD patients have in common.(3)

Autopsies on people with Parkinson's disease have shown that degeneration of nerve cells in the brain occurs. This cell death occurs mostly in parts of the brain known as the basal ganglia which is primarily involved in the regulation of movement. The disease selectively kills those nerve cells which use the chemical messenger dopamine to send their signals.

Some drugs may mimic or aggravate the symptoms, of Parkinson's Disease. These include Haloperidol (Haldol), Properidol, Chlorpromazone, and other, similar tranquilizing and anti-psychotic drugs. The effects may persist up to two years after removal of the drugs.(4)

Symptoms of PD

Every person with Parkinson's Disease is different and may develop a slightly different set of symptoms. The initial symptoms are especially variable, and it may be difficult for a doctor to diagnose the disease until all three classic symptoms (tremor, rigidity, and bradykinesia) are present.

Despite this variability, certain symptoms are seen frequently in patients with Parkinson's Disease, especially as the disease progresses. There is a characteristic posture: hips, elbows, and knees slightly bent, trunk leaning forward. The individual will typically walk with small, shuffling steps which occasionally become smaller and faster until the person may fall. This rapid, short shuffling is called festination and may occur without warning during walking. Sometimes one foot seems to become glued to the floor, known as freezing, only to become "unstuck" in a few moments. Occasionally, a person may get stuck in a doorway or at a corner and will walk in place for a few steps before being able to move forward again.

Another common problem is one of communication. Speech problems are present in 50% of all cases and are more frequently seen as the disease progresses. The voice may be quiet and breathy with little variation in pitch or loudness. It may be blurred or slurred so that words are difficult to distinguish.

Occasionally speech may occur in short rushes or sometimes the voice may become softer and softer until the speech is completely inaudible. Lack of pitch variation together with the lack of facial expression make it difficult for a person to communicate emotion.

The communication problem is not only one of getting one's own point across but of understanding what other people are saying. Individuals often do not pick up on variation of pitch and tone in the speech of others and tend to miss gestures and facial expressions. Thus, the problem is two way and often leads to frustration and isolation for the victims of Parkinson's disease.(5)

Some individuals also have difficulty with eating and swallowing. Hand and arm movements used in eating may be difficult to control, and the muscles used in swallowing often lose the smooth coordination seen in people without the disease. A Parkinson's patient needs time to eat a meal. Rushing only makes the problem worse and may lead to malnutrition.

In general, the Parkinson's patient may have difficulty with any action that requires coordinated use of muscles, including writing, knitting, or even tying shoes. But the problems with specific movements are not constant from hour to hour or day to day. A person with Parkinson's Disease may be able to accomplish a task in the morning and find it impossible a few hours later, and vice versa. This is called paradoxical kinesia and is very distressing for the patient since helpers often don't understand how the patient's abilities can change in such a short period of time.

Many other symptoms of PD may be found, and again, it is important to remember that not every patient will show a given symptom. Many may have excessive sweating or oily facial skin because of poorly controlled glands, conjunctivitis because of decreased blinking of the eyes, edema (swelling) of the feet because of lack of movement, or muscle pain because of greater

muscle tone. Each person should be approached with an open mind and should be allowed to explain what problems Parkinson's disease presents in their life.

Treatment

The most effective drug treatment for Parkinson's disease is levodopa therapy. Because the disease selectively destroys brain cells which produce and use dopamine, supplying extra dopamine helps those cells which are left to work more efficiently. Dopamine, however, cannot get into the brain from the blood, but levodopa, which the brain converts to dopamine, can. Therefore, standard treatment involves administering levodopa combined with a protein which helps to prevent levodopa from being converted before it gets to the brain. One such preparation is Sinemet.

However, long-term levodopa therapy, especially at high doses, may eventually lead to bad side effects and a loss of the drug's effectiveness. Some researchers believe that levodopa may cause permanent changes in the brain that make the patient's response to the drug variable. These scientists believe that levadopa therapy should be delayed until the disease is advanced. Other researchers disagree that levodopa causes permanent change and believe in starting levodopa therapy early.(6)

Three other types of drugs are commonly prescribed anticholinergics, amantadine, and bromocriptine. Anticholinergics (such as Trihexiphenidyl) help to restore balance between different types of brain cells. Amanfadime (Symmetrel) enhances the release of dopamine by brain cells. Neither is as effective as levodopa. Bromocriptine (Parlodel) is usually used with levodopa; it complements or mimics levodopa's action.

Side effects of the drugs are numerous. Levodopa may cause confusion, depression, problems with movement, low blood pressure, and other symptoms. Anticholinergics may cause confusion, hallucinations, dry mouth, blurring of vision, constipation, and others. Amantadine has relatively few side effects but usually

loses its effect after a few months of treatment. Bromocriptine may cause confusion, sedation, movement problems, nausea and vomiting.

In view of these problems, physicians prefer to keep dosages low and try to strike a balance between the symptoms of the disease and the side effects of the drugs. To help with problems that the drugs do not alleviate, speech and occupational therapy, exercise, and proper diet are recommended..

Speech therapy can be of great assistance to those patients having trouble communicating. Speaking ability and understanding can be significantly improved in a large number of people with Parkinsons Disease.

Occupational therapists can help patients learn to overcome some of their movement problems and can provide aids such as cutlery with enlarged handles. Plates with raised rims, special drinking cups, and so on. (7) Exercise can help improve posture, maintain mobility, and prevent contractures. Proper nutrition is especially important because of problems with eating. Although soft foods may be easier to eat, the patient must get enough fiber and drink plenty of liquids. Diet should be consistent, because variations can interfere with the absorption of levodopa. Vitamins are important, but larger than normal doses, especially of B6 and C, can interfere with drug therapy. No vitamin in particular has been shown to help in Parkinson's disease.(8)

In addition to these treatments, it is important to receive understanding from those around the individual. It can be frustrating and upsetting when others perceive mumbling to be a sign of a wandering mind, slurred speech and unstable walking posture as drunkenness. When communication is difficult, a person with Parkinson's disease may withdraw, and "hovering" can lead to a loss of independence. People with Parkinson's disease need encouragement and patience from those around them in living with the disease.

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2. Miller, James Q., p.323
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4. Scott, Shelia, p.3.
5. Ibid, ch. 2.
6. Pingus, Jonathan H., pp. 612-3
7. Scott, Shelia, ch. 9.
8. Duvoisin, Roger C., pp. 126-45

Alzheimer's Disease and Dementia

Alzheimer's Disease and Dementia

Dementia is a term referring to a condition in which a person has progressive loss of memory and intellectual function. Dementia in itself is not a disease; it is a set of symptoms that may be caused by several diseases or conditions. A small percentage of these diseases are reversible with treatment. The majority, however, are irreversible and get worse with the passage of time.

Many people believe that dementia is a normal part of aging; it is not. About 80% of elderly people never suffer from significant symptoms of dementia.[1] Occasional forgetfulness is normal at any age, and although it may increase slightly with age, it is generally not severe enough to interfere with a person's lifestyle. Dementia which disrupts a person's normal way of life is abnormal and can be attributed to one or more of several causes

The most common of the dementias is Alzheimer's Dementia (also known as SDAT, senile dementia of the Alzheimer's type.) A few years ago, the name was not well-known; but with the exposure of television and lay literature every type of dementia is likely to be labeled as Alzheimer's Dementia. Careful assessment of any person showing signs of confusion or memory loss is necessary to determine what type of dementia is present.

Alzheimer's Dementia

Alzheimer's dementia was recognized in 1907 by Dr. Alois Alzheimer. It was then believed to be responsible only for those people who became confused between the ages of 40 and 55. Dementia which began later was thought to be a normal part of aging. Now it has been demonstrated that the same brain abnormalities Alzheimer described in these early patients are present in a large percentage of people whose symptoms begin after the age of 55. It is now estimated that more than half of all patients with dementia are suffering from Alzheimer's Dementia.[2]

The cause of Alzheimer's dementia is not yet known. The tendency to develop it may be hereditary, but research has not shown for certain whether this is so. The cause may be environmental (eg., exposure to some toxic chemical) or it may come from within the body (for instance, a deficiency in the immune system).[3] No etiology has been determined.

A doctor cannot be certain whether a patient has Alzheimer's disease until an autopsy is done on the brain after death. This will show whether a patient had the characteristic abnormalities in the brain that define this form of dementia. These brain changes are senile plaques and neurofibrillary tangles. Senile plaques are clumps of dead nerve tissue in between the brain cells. Neurofibrillary tangles are snarls of protein fibers that occur inside the brain cells. Soon after the appearance of these changes in and around a brain cell, the cell shrivels and eventually dies.[4]

Death of brain cells in Alzheimer's dementia has been shown to occur mainly in certain areas of the brain. Some of these areas, such as the hippocampus, may play a role in learning and memory.[5] Death also occurs primarily among brain cells of a certain type, which uses the chemical acestylcholine to communicate information.

Assessment:

Because a diagnosis of Alzheimer's dementia cannot be confirmed until death, physicians must be careful in assessing each individual patient. One team of doctors, headed by Barry Reisberg, MD, has developed a practical method of evaluation that helps to rule out other causes and complications of dementia. This method is known as FAST staging (Functional Assessment Staging). It is based on the theory that most cases of Alzheimer's follow a similar pattern of loss of function that is different from the progress of other types of dementia.

There are seven FAST stages, the last two of which are broken up into smaller stages. A brief summary of the stages is as follows:[6]

Stage	Characteristics	Diagnosis
1	No loss of function	Normal
2	Forgetting names and locations of objects	Normal aging
3	Problems with complex tasks such as writing, traveling to new locations	Possible onset of AD (Alzheimer's Dementia)
4	Inability to handle tasks such as balancing a checkbook, shopping, planning a party	Mild AD
5	Inability to perform basic task of daily life such as choosing proper clothing	Moderate AD
6a	Difficulty dressing properly	Moderately Severe AD
b	Difficulty bathing properly	
c	Difficulty toileting	
d	Urinary incontinence	
e	Fecal incontinence	
7a	Can only speak a few words	Severe AD
b	Vocabulary completely lost	
c	Can no longer walk	
d	Can no longer sit up	
e	Can no longer smile	
f	Cannot hold up head	

The diagnoses in the right hand column only apply if the disease has gone through the previous stages in order and at a rate typical of Alzheimer's dementia. Each stage by itself or out of order could result from a different disorder. Depression can mimic all but the most severe stages. Stage 2 can be caused by an anxiety neurosis. Parts of stages 6 and 7 can be caused by arthritis, stroke, infection, chemical imbalance, overmedication, or various other problems. Many of these problems are treatable.

Treatable or non-progressive causes of dementia that must be ruled out include:

Hyper - or hypo-thyroidism: the thyroid produces too much or too little hormone. These conditions can be treated by hormone therapy.

Delerium: usually develops over a short period of time. It can be caused by many problems including fever, overmedication, salt or sugar imbalance, kidney failure, or pain.

Depression: a person suffering from depression may become forgetful or confused. Depression can also worsen an already existing dementia. Depression can be treated by various anti-depressant drugs.

Specific brain damage or stroke: An injury to the head from a fall or accident or a stroke can cause symptoms of dementia. Unlike Alzheimer's dementia, these conditions will not get worse unless another event occurs.

Progressive, irreversible forms of dementia include Alzheimer's dementia and a syndrome known as multi-infarct dementia. The latter accounts for 10 to 20% of all cases of dementia, and its cause is not known. Other types of irreversible dementia are much rarer.

Evaluation of a patient must be precise and thorough. Although FAST staging has proven to be a useful tool in assessment, the progress of Alzheimer's dementia can be variable, and careful follow-up is essential no matter what the diagnosis. Treatable complications such as those listed above can occur at any point during the course of Alzheimer's dementia.

Dealing with Dementia

Once the diagnosis of an irreversible dementia is made, where do the caretaker and patient go from there?

When a person must assume partial or complete care of a demented relative, many practical and emotional problems arise. The 36 -Hour Day, by Nancy L. Mace and Peter V Rabis, MD, is an excellent resource for the caretaker. It outlines the difficulties in caring for a confused person and offers practical suggestions for overcoming them on a day to day basis.

It is important to realize that the caretaker needs as much support and assistance as the patient. In Massachusetts, available services include respite care (temporary alternate care to give relief to the caregiver), occupational therapist assistance in adjustment of new environments, and personal care assistance. Some nursing homes offer adult day care programs, supervision, opportunities for socialization, and in some cases, medical care. Some of these programs, however, are not equipped to handle patients who wander uncontrollably, a

problem often seen in Alzheimer's dementia. In addition, hospitals may offer or know of Alzheimer support groups.

Caretakers need to know that they are not alone. Any kind of dementia is a frustrating, agonizing coping problem, even after a patient has been admitted to a nursing home. Knowing where to go for help is an important first step toward getting it.

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Footnotes

1. Mace and Rabins, p. 7.
2. Zarit, et. al., p. 10.
3. Ibid, p. 14.
4. Ibid, p.14.
5. Nolte, p.300.
6. Reisberg, Barry, Md, p. 39.

Addendum

Respite Services

In the Commonwealth of Massachusetts, Respite Services are available to all caregivers, including families of elders with Alzheimers'Disease.

In general respite services include:

- **companion**
- **homemaker/personal care**
- **home health aides**
- **social day care**
- **Adult Day Health Care**
- **Nursing Services**
- **Short Term Institutional Care**

For caregivers of elders with Alzheimers Disease, there are special services available which include:

- **Alzheimers Day Care Projects**
- **In-home respite care which is specifically designed for Alzheimers' Disease.**

Additionally, throughout the State, family support groups have been established in cooperation with Alzheimers' Disease and Related Disorders Association (ADRDA) in order to assist families, friends and victims of Alzheimers' Disease.

Urinary Incontinence

I Urinary Incontinence

Difficulty in controlling bladder function, known as urinary incontinence, is a widespread problem among the elderly. Among those living independently, an estimated 10 to 20%[1] have problems with incontinence, as do about half of those in nursing homes. The problem is an important one since urinary incontinence is one of the major reasons for an elderly person being admitted to a nursing home.

Many people who have the problem do not talk to their doctors about it, either because they are embarrassed or because they think nothing can be done about it. Depending on the cause of the problem, however, there are various treatments available that can alleviate or even cure many of the cases.

II Causes of Incontinence

The bladder is a muscular sac which can expand or contract to hold varying amounts of urine. As the bladder fills with urine flowing from the kidneys, the pressure on the expanding bladder stimulates nerves to signal that the bladder needs to be emptied. This signal is perceived as the urge to urinate. Normally, a person's brain sends a signal back to the bladder suppressing the urge until it is convenient to urinate. When a person does urinate, the muscle of the bladder contracts and empties the bladder through a tube called the urethra. The urethra has a ring of muscle around it, called a sphincter, which keeps the urethra closed except during urination.

Incontinence can be caused by problems at several points. The brain may not be successful in suppressing the urge to urinate, the sphincter may lose its ability to contract, or other problems may interfere with normal urinary function.

1. Uninhibited bladder - The most common cause of incontinence is the loss of the suppression signal from the brain. This condition, responsible for over half the cases of incontinence,[2] is known as having an uninhibited bladder or an unstable bladder. When a person has this problem, the bladder spontaneously empties itself as soon as it becomes full because it has escaped control of the brain.

   Several health conditions can cause this loss of the brain's override signal. Parkinson's disease, stroke, dementia, multiple sclerosis and tumors can all lead to destruction of the nerve cells

in the brain that send out the signal not to urinate.[3] Bladder infections can also cause the bladder to contract and empty itself spontaneously, even when the brain signal is still present.

2. Stress incontinence - This condition is especially common in elderly women, although some men also suffer from it. The underlying problem is the loss of the urethral sphincter's ability to contract. This can be caused by stress on this muscle in childbirth, vaginal hysterectomy, or obesity, by deterioration of the muscle due to estrogen deficiency, or simply by aging of the muscle. In men, it may be caused by surgery on the prostate gland. A person with this problem typically has small leaking accidents when coughing, sneezing, laughing, or lifting something heavy. Each of these actions puts pressure on the bladder, and the sphincter is not strong enough to hold back the flow of urine.
3. Overflow Incontinence - This condition accounts for up to 10% of incontinence problems. It occurs when something prevents complete emptying of the bladder when a person urinates. The bladder eventually becomes so full that it leaks without warning. Problems preventing bladder emptying include failure of the bladder walls to contract during urination, failure of the sphincter to relax, or blockage of the urethra by an enlarged prostate gland or a large mass of bowel in the nearby rectum.
4. Other Causes - Some drugs can cause incontinence or contribute to it. Diuretics, especially potent ones like Lasix, increase the amount of urine produced by the kidneys, and a person may be caught by surprise when the bladder fills more quickly than usual. Caffeine is a diuretic. Anticholinergic drugs, such as anti-depressants or anti-Parkinsonian drugs, may prevent the bladder muscle from contracting and emptying the bladder. Tranquilizers or sleeping pills may make the person unaware of the need to urinate until it is too late or may prevent waking in time.

A change in environment can also lead to incontinence. When a person moves to a new house or a nursing home, accidents may result because of forgetting where the bathroom is, because the bathroom

is further away than before, or because there are obstacles to reaching the bathroom (eg. bed rails or unfamiliar furniture).

III Treatment of Incontinence

The first thing a physician will attempt to do is find out the cause of the incontinence. In addition to conducting a physical exam, he may ask the person to urinate every two hours and keep a diary of when accidents occur and what the person was doing at the time. This may help the doctor to pinpoint the problem. Bladder infections can be treated with antibiotics, treatment with diuretics can be modified or stopped, and environmental obstacles can be removed. Once these possibilities have been dealt with or eliminated, several methods of treating incontinence are available.

1. Habit Training - In order to retrain bladder function, the doctor may have the person go to the bathroom every two hours during the day, then gradually lengthen the interval to 2 1/2 hours, then 3, then 3 1/2, and so on. A person with a milder incontinence problem may eventually reach a good level of continence.[4]

2. Biofeedback - One of the most effective ways of treating incontinence is to exercise the urethral sphincter with the aid of biofeedback. The excercises are called Kegel exercises. They involve tightening the muscles of the pelvic floor (as a person does when holding back or interrupting the flow of urine), holding for 10 seconds, and relaxing. This is repeated 25 times or so, 2 to 3 times a day.

   The exercises can be done without biofeedback but are more effective with it. The purpose of biofeedback is to help the person understand what the muscles being exercised do and to provide immediate feedback on whether the correct muscles are being tightened. The biofeedback apparatus consists of a tube with three small balloons which is inserted into the rectum. (See Figure 1). These balloons measure the pressure inside the abdomen (which is the same as the presure in the rectum) and the tightening of the Kegel Muscles (which include the urethral sphincter). The pressures are recorded on a polygraph that the person can see while doing the exercises. In addition, a catheter inserted in the bladder measures the amount of fluid and pressure in the bladder, which is also recorded on the polygraph for

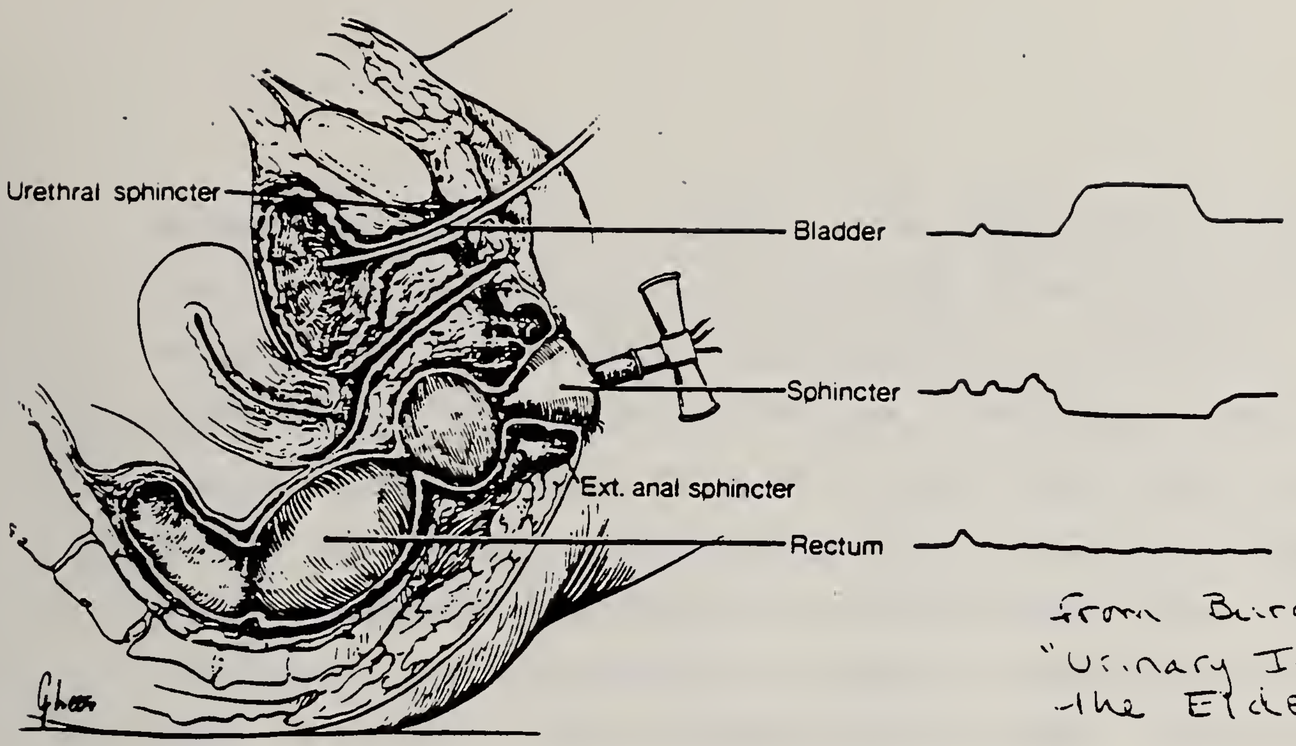

Figure 1. Diagram of female pelvic anatomy showing the devices used to provide biofeedback information to the patient. Sample polygraph tracings are shown at right.

From Burgio, Kathryn L. et al.
"Urinary Incontinence in the Elderly."

the patient to see. All of this equipment lets the person see what each of the muscles is doing and improves the person's ability to control the muscles properly. Several studies have shown great success with biofeedback techniques for stress incontinence.[5-7]

Biofeedback can also be used to treat an uninhibited bladder. The same apparatus is used, but now the person is taught to relax the muscles of the bladder itself, in addition to learning the Kegel exercises. One study showed significant improvement in a group of twelve people with uninhibited bladder problems.[8]

3. Drug Therapy - Various drugs have been used to try to alleviate symptoms of incontinence in elderly persons. Three drugs have proven useful in many cases: estrogen, imipramine (Pramine or Tofranil) and oxybutynin chloride (Ditropan).[9]

Estrogen is useful in women whose urethral sphincters have deteriorated because of lack of estrogen after menopause. The estrogen is applied directly on the vaginal wall instead of taken orally to decrease the risk of side effects.

Imipramine may be used in men and women with stress incontinence or uninhibited bladder. The drug is believed to help relax the muscle of the bladder wall to prevent spontaneous emptying and to tighten the urethral sphincter. Studies show that the drug offers some help in 60% of the cases, but 40% may show such side effects as drowsiness, dryness of the mouth, and postural hypotension (dizziness on standing up).

Oxybutynin is used in patients with uninhabited bladders. It also acts to relax the bladder musculature and has about the same rate of

success as imipramine. However, more than half of people who tried the drug in one study experienced side effects such as dryness of the mouth, retention of urine, constipation, or confusion.

4. Other Aids - For people in whom the incontinence problem cannot be solved, there are aids which will still allow them to remain independent and active. Incontinence briefs, such as Attends, can be purchased from a drug store or medical supply store. For milder incontinence, sanitary napkins or special incontinence shields may be used. For men, condom catheters may be used. Indwelling catheters for either men or women are not recommended because they are uncomfortable and tend to lead to infections. Use of a drug called chlorophyllin is sometimes successful in reducing urine odor.

   It may be helpful for people with incontinence problems to limit the amount of caffeinated beverages they drink, especially before bed. However, limiting fluids in general is not helpful and may lead to kidney infections or other health problems.

Overall, the most important fact to remember is that urinary incontinence is not hopeless. Any elderly person with the problem should see a doctor to seek a way of alleviating or even curing the problem.

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5. Burgio, Kathryn L. et. al., 1985, p. 509-10.
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Hypertension

Hypertension

Hypertension is a medical term for high blood pressure. It is a common condition in the United States. The American Heart Association estimates that about one in every four adults (over 37 million people) has high blood pressure.(1)

Diagnosis

Blood pressure is measured in millimeters of mercury (written mm Hg). One mm Hg is the amount of pressure needed to push the mercury in a tube up one millimeter. Blood pressure is written as a fraction, such as 120/80 mm Hg. The top number (here, 120) is the systolic pressure, which is the pressure in the arteries when the heart is contracting. This is the maximum blood pressure. The bottom number (here, 80) is the diastolic pressure, which is the pressure in the arteries when the heart is relaxed. This is the minimum pressure put on the arteries.

Not all doctors agree how high is too high for blood pressure, or when treatment should begin. The diastolic pressure is the number usually watched, and it is generally agreed that a diastolic pressure of 100 mm Hg or over must be treated. However, it is becoming more and more common to treat milder hypertension, such as 90 mm Hg or over, since studies show that even mild elevation of pressure increases health risk.(2)

Causes and Contributing Factors

Hypertension can be divided into two categories: Essential hypertension, which has no known cause, and secondary hypertension, which is due to some other underlying health problem.

Secondary hypertension accounts for less than 10% of all cases. It can be caused by disease of the kidney, the adrenal glands, the brain, or the blood vessels, or it may be drug induced.

Essential, or primary hypertension, is by far the more common, accounting for at least 90% of all cases of hypertension. Although the cause is unknown, several factors have been shown to increase the risk of developing it

1. Heredity. Hypertension tends to run in families. People whose parents have high blood pressure are more likely to develop it themselves.
2. Age. Hypertension generally does not develop until later in life, usually after the age of thirty. High blood pressure is more common with increasing age and is a frequent health problem of the elderly.
3. Race. High blood pressure is two to three times as common in blacks as in whites.
4. Weight. People who are overweight have an increased chance of getting hypertension. People who have high blood pressure often lower it when they lose weight.
5. Salt consumption. Many studies show that people who eat a lot of salt are more likely to become hypertensive, especially if they have a family history of high blood pressure.
6. Smoking. Although smoking has not been shown to lead to high blood pressure, it does increase the risk of developing health problems associated with hypertension.

Dangers of Hyptertension

Although a person with high blood pressure does not feel ill or notice any symptoms at all, hypertension leads to serious health problems in several parts of the body.(3)

1. The heart. Elevated blood pressure puts a strain on the heart and can lead to angina, heart attack, or congestive heart failure.
2. The arteries. Hypertension seems to contribute to the buildup of plaque on artery walls or (atherosclerosis), and sustained increase in blood pressure can cause tearing of the wall of the aorta.
3. The brain. People with hypertension have a much higher incidence of strokes, transient ischemic attacks (TIAs, small strokes), and brain hemorrhage.
4. The eye. High blood pressure can cause a vessel in the eye to rupture, damaging sight, and can also cause other eye abnormalities.
5. The kidneys. The kidney may sustain the greatest amount of damage after prolonged high blood pressure. Hypertension can worsen existing kidney problems or cause problems on its own which lead to kidney failure.

It may take many years of sustained high blood pressure to produce these health problems, but because they are so serious, it is important to prevent them. The decrease in deaths due to stroke, heart attack, and kidney failure in the last 15 years can be largely attributed to the effective treatment of high blood pressure.(4)

Treatment

Most people with high blood pressure are treated with drugs. However, there are some non-drug treatments which may be recommended for people with very mild hypertension or in conjunction with drug treatment for those with more serious hypertension.

Weight loss is an important first step for any obese person with high blood pressure. A loss of ten pounds or more may cause a significant drop in blood pressure.(5)

Reduction of sodium in the diet is often recommended. This can be difficult as large quantities of salt are contained in most processed foods, even though they may not taste salty. Foods to avoid include canned products, boxed mixes, TV dinners, salted snack foods, cured or processed meats, cheeses, and many condiments such as soy sauce, ketchup, steak sauce, barbeque sauce, and so on.

Decreasing alcohol consumption is also advisable, as drinking increases blood pressure. Other treatments such as exercise, stress reduction, and quitting smoking may not reduce blood pressure but do help to decrease the risk of the health problem high blood pressure can cause.

Drug treatment remains the most effective way of lowering blood pressure. Although these drugs may cause side effects in some patients, there are so many types of drugs now available that doctor and patient can work together to find the best drug for each individual. Following are the types of drugs currently in use and some of their side effects.(6)

Drug Type	Examples	Possible Side Effects
1. Diuretics - reduce the amount of fluid in body	Miazides Bumethalidone Chlorthalidone	dizziness, drowsiness, low potassiusm, dryness of mouth, constipation
	Spirondactone	high potassium, diarrhea, nausea
2. Vasodilators - decrease resistance of arterial walls (relax arteries)	Hydralazme Minoxidil	fast heartbeat, angina, headache, fluid retention
3. Adrenergic Inhibitors - decrease the effects of the sympathetic nervous system	Beta blockers (Propanol)	slow heartbeat, light-headedness, weakness, asthmatic symptoms
	Alpha blockers (Prazosin)	sodium retention, low blood pressure
	Methyldopa	weakness, depression
	Reserpine	depression, peptic ulcer, decreased sex drive
4. Angiotensin Converting Enzyme (ACE) Inhibitors - decrease an enzyme that constricts blood vessels	Captopril	rash, loss of taste, low blood pressure

Other drugs are still being investigated. The side effects listed above are only experienced by a certain percentage of people taking each drug, and the problems can often be eliminated by switching drugs.

In prescribing drugs, physicians usually use what is known as the stepped care approach. Step one is to begin with a low dose of either a thiazide diuretic or a beta blocker, increasing to full dose if necessary. If blood pressure is not sufficiently lowered, step two is to add a low dose of adienergic inhibitor or thiazide diuretic, again increasing to full dose if necessary. If this doesn't work, step three is to add a vasodilator. Step four, if necessary, is to add a more potent vasodilator, another step two drug, or another type of drug not yet tried. Many physicians will use an ACE inhibitor at step two, three, or four. The stepped care method has been

proven to be clinically effective.(7)

Hypertension cannot be cured, either by drug or non-drug treatment, but it can be controlled and its dangerous effects avoided. Especially in the elderly, who are more susceptible to the health problems caused by high blood pressure, treatment is essential.

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Congestive Heart Failure

Congestive Heart Failure

In 1983, it was estimated 2.3 million Americans were suffering from congestive heart failure, and the number of cases rises every year. Like most chronic diseases, it is especially prevalent among the elderly. There are many different causes of the condition as well as several types of drugs used in its treatment.

Congestive heart failure is actually a combination of two problems: heart failure and congestive failure. Heart failure is the first to occur; for one reason or another, the heart simply cannot pump out enough blood to meet the body's needs. As the pump slows, fluid returning from the body starts to back up behind the heart (i.e., in the veins leading to the heart). This back-up leads to other complications and is the basis of congestive failure.

Causes of Heart Failure

In general, the heart fails because some of its muscle cells die and no longer contribute to the pumping action of the heart. Heart cells can die because of constant overloading, as caused by disease of the heart valves and high blood pressure; because of myocardial infarction (heart attack); inflammation of the heart muscle or the pericardial sac that envelops the heart; or any disease process that affects the heart. As heart cells die, the remaining cells must work harder to continue pumping. These cells enlarge in order to do that job (a process known as *hypertrophy*, but this compensation may not be enough if too many cells have been lost.

Causes of Congestion

When the heart can no longer pump out as much blood, a situation is reached where there is more blood coming to the heart then there is leaving the heart. The amount of blood in the vessels going to the heart (the veins) goes up, and

the amount of blood in the vessels leaving the heart (the arteries) goes down. Since the arteries deliver blood with oxygen and nutrients to body cells, the body must act to increase the arterial blood supply or starve.

One way in which the body tries to compensate is by activating the sympathetic nervous system, which releases chemicals known as catecholamines. These chemicals increase the strength and speed of the heart's contraction and constrict the smaller blood vessels where blood is needed less, leaving more blood for other areas. The effect of the sympathetic system on the heart's pumping is only temporary, however, as the heart becomes less sensitive to the catecholamines after prolonged exposure.

Another chemical system that becomes activated is the renin/angiotensin system. When the kidney detects low blood pressure in the arteries, it releases a substance called renin. Renin leads to the production of another substance known as angiotensin I, which is then converted to angiotensin II. Angiotension II is a potent constrictor of blood vessels and acts to raise the blood pressure. It also causes the release of aldosterone, which acts on the kidneys to retain salt and body water. This increases the volume of blood in the body and also contributes to raising the blood pressure.

These compensations, however, have a negative effect on the heart. The higher blood pressure and volume put more strain on the failing heart, and the back-up of blood in the veins becomes worse. When the heart fails primarily on the left side (left heart failure), the blood overload is worst in veins coming from the lungs. If the pressure becomes high enough, fluid leaks from blood vessels into the lung tissue, which can eventually lead to pulmonary edema. When it is the right side which fails (right heart failure), this fluid leakage may result in edema elsewhere (eg, in the abdomen or extremities.).

Diagnosis

The difficulty with diagnosing congestive heart failure is that the earlier symptoms are often vague and variable and mimic other,non-heart related health problems. Early symptoms of left heart failure may be no more than a cough or shortness of breath during exercise, and a physician may suspect a viral infection. Right heart failure may first show up as abdominal pain (due to overloading of abdominal tissue with fluid), loss of appetite, and nausea. These symptoms may be blamed on gastrointestinal problems. Heart failure in general leads to fatigue, which many doctors consider part of the aging process. By the time a classic sign such as pulmonary edema shows up, the disease is already well advanced.

Once congestive heart failure is diagnosed, there are several options for treatment. It is important for the doctor to determine the cause of the disease, since some underlying conditions may be treated directly. Faulty heart valves can sometimes be replaced; thyroid-related heart disease can be treated with hormone therapy. Often, however, the root cause cannot be treated and the doctor must then work to alleviate the symptoms of the disease. For this purpose, a number of drugs are now in use.

In order to get rid of the excess fluid in the body, diuretics are used. These drugs act on the kidney to cause it to release more water through the urine. Milder diuretics, such as metolazone (Diulo, Zaroxolyn) or indapamide (Lozol) are usually used first, especially in the elderly. If more strength is needed, the powerful loop diuretics, such as jurosemide (Lasix) or bumetanide (Bumex), are used.

In order to stimulate the heart to pump more strongly, a doctor may prescribe inotropic agents. These are drugs which enhance contraction of

heart muscle cells. The most commonly prescribed inotrope is digitalis or digoxin. Its benefit in congestive heart failure patients is controversial at present, and the side effect of digitalis toxicity is a danger. Several studies show, however, that some patients do benefit from digitalis therapy. Newer inotropic agents such as amrinone, milrinone, and others show promise for treatment, but their long-term effectiveness has not been proven yet.

Another approach is to relieve the load on the failing heart by using vasodilators. These drugs open up the constricted blood vessels and reduce the pressure on the heart. There are several different vasodilators that work in different ways. Nitrates (such as nitroglycerin) dilate the veins, lowering pressure of blood entering the heart. These reduce the strain on the heart but do not increase the heart's output, and the effect may wear off after long-term treatment. Hydralazine predominantly dilates the arteries and reduces the afterload on the heart, or the pressure the heart must push against while pumping. This drug increases the output of the heart, but it, too, becomes less effective after a long period of use. Prazosin dilates both arteries and veins, but the body becomes immune to its effect too quickly for it to be of long-term benefit.(5)

The vasodilators that have been shown to be most effective are the angiotensin converting enzyme (ACE) inhibitors. These block the conversion of angiotensin I to angiotensin II and thus relieve the constriction of blood vessels caused by angiotensin II. The result is that both arteries and veins are dilated, blood pressure is lowered (relieving the strain on the heart), and the output of the heart is improved. The ACE inhibitors rarely lose their effect during long-term treatment, and studies

show that improvement is seen in 60-70% of congestive heart failure patients treated (compared with 50% for nitrates and less for other vasodilators).(6)

Other drugs have been used experimentally in congestive heart failure; these include calcium channel blockers and beta blockers. Their use in congestive heart failure is still controversial.

None of these drugs has been proven to increase the chances for survival of the congestive heart failure patient. Unless the underlying problem can be treated, which is frequently not the case, congestive heart failure cannot be cured, only alleviated. These drugs do, however, greatly increase the quality of life for sufferers of the disease, and as advances are made in drug therapy, the prognosis for congestive heart failure may improve.

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Drugs and the Elderly

DRUGS AND THE ELDERLY

Elderly people commonly develop problems with drug treatment. These problems include drug interactions, toxicity, and side effects. The aged are at risk in this area for several reasons. First, the elderly have more chronic illnesses, so they take a greater number of medications on the average than do younger people. This increases the chance that reactions to drugs and interactions between drugs will occur. In addition, many body organs become less efficient with age, and this may affect the way the body handles certain drugs.

I BODY CHANGES WITH AGE

Digestive System: Oral medications are dissolved and absorbed in the stomach and intestines. Because older persons' stomachs produce less acid, they are less able to dissolve some kinds of drugs. Also, there is less blood supplied to the digestive system in the aged, so absorption of many oral medications into the bloodstream may be slower and less complete.

Liver: The liver breaks down drugs in the bloodstream and inactivates them. This function is decreased in the elderly for two reasons: (1) blood supply to the liver is decreased, and (2) the organ itself works less effectively. As a result, drugs stay in the bloodstream longer and at higher levels before the liver can remove them. This means that a given dose of medication will lead to higher levels of the drug in the body of elders than it would in a younger person.

Kidneys: The kidneys remove many drugs and drug break-down products from the bloodstream and dispose of them through the urine. Like the liver, the kidneys receive less blood to filter and are less efficient in the elderly than in younger people. A lower dose of a drug may be needed to produce the same effect as a higher dose in a younger person.

Blood: The blood has proteins which bind to drugs in the circulation. Only drug molecules which are not held by these proteins have an effect on the body, so these proteins decrease

the amount of drug available for action. In many older persons, especially those who are chronically ill or malnourished, the blood has smaller amounts of these proteins. Therefore, a smaller percentage of a drug is bound and there is more free or active drug in the bloodstream after a standard dose in elderly people.

Fat: Older people have a greater percentage of fat in their bodies than younger people of similar weight. For men, body fat goes from 18%, on the average, to 36% as the aging process occurs. For women, body fat goes from 36% to 48%. Some drugs are absorbed and retained by fat, and these will stay in the blood longer. Examples include barbituates, alcohol, tranquilizers, and anticonvulsants.

Drugs that do not enter the fat reserves of the body, on the other hand, now have a smaller space in which to be diluted. These will be at higher levels in the lean tissues and may have an increased effect on the elderly.

Body Fluids: The average older person has less body fluid than a younger person. Since there is less fluid in which the drug is distributed, the drug concentration will be higher.

Overall, a given dose of a drug may lead to a higher concentration in the bloodstream of an elderly person than in a younger person. If a physician does not take body changes with increasing age into account, too high a dosage may be prescribed for a patient which can lead to toxicity and other side effects. Since these changes vary greatly from one elderly person to another, medication must be prescribed cautiously and results watched with care.

II. DRUG EFFECTS ON THE BODY

Drug Interactions: Two different drugs may interact in a patient to produce negative effects. The more medications a

person takes, the greater the chance of an interaction.

Interactions are of several types. One drug can interfere with the action of another, for instance, antacids block the absorption of tetracycline, an antibiotic, from the stomach. A drug can also increase the effect of another drug. Quinidine, a drug often prescribed for abnormal heart rhythms, may greatly increase the level of digitalis in the blood. In addition, two drugs may interact to produce a side effect that neither produces alone.

Drug interactions are so varied and so numerous that is is virtually impossible for a doctor to memorize them all. Therefore, the elderly should be monitored carefully after the prescription of a new drug.

Toxicity: Toxicity refers to a state in which a drug is at such a high level in the body that it is harmful for the individual. The results can be serious. Digitalis, for example, a common medication used to treat congestive heart failure and other heart problems, can cause serious abnormalities in the heart's rhythm if blood levels are too high. Many drugs can be harmful above therapeutic levels.

Some Common Drug Side Effects: Not every person's body reacts to a certain drug in the same way. Adverse side effects can occur. This is particularly true of the elderly because of the body changes mentioned and the number of drugs they take.

Some drugs may cause psychological side effects such as depression or confusion. Depression may be caused by narcotics and other drugs. Confusion may be brought on by steroids, antidepressants, certain heart medications, and many other medications. Drug-induced confusion may be misdiagnosed as dementia.

It is wise to regard the elderly as a special health group where medications are concerned. Drug treatment should be considered carefully before it is started and progress monitored continuously. When new symptoms appear,drug side effects should be ruled out before further treatment is considered.

Alternatives to medication should also be explored. Some conditions can be controlled or alleviated by diet, physical or occupational therapy, biofeed-back, or other interventions.

Heidi-Berube
July 30, 1986

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Pressure Sores in the Elderly (Decubitus Ulcers)

Pressure Sores in the Elderly (Decubitus Ulcers)

Decubitus ulcers (also known as "bed sores" or "pressure sores") are areas of deterioriation that frequently form on the skin of a bed-ridden or immobile patient. They begin as sharply-defined reddened areas and left untreated, may progress to open sores which can reach considerable depth. The causes of these sores are both internal and external. Poor patient health, including malnutrition, obstruction of blood supply by arteriosclerosis, or other vascular disease, contributes to the development of ulcers. The most important external cause is pressure, generally from the patient lying on the area where skin is stretched across a bony prominence and there is little subcutaneous tissue. The blood supply can be compromised and a pressure sore could result.

Elderly patients are particularly likely to develop these sores for several reasons. First, they are more likely to be immobilized (due to arthritis or other illness) or confined to bed (because of chronic illenss or surgery). Elderly persons who fracture their hips are especially at risk during their hospital stay.[2] In addition, the elderly tend to have poorer circulation because of a higher incidence of vascular disease.

Pressure sores are most likely to develop in certain areas of the body. 95% develop in one of the following places (in order of frequency): 1. the end of the spine - 33- 45 % of ulcers occur here 2. the hip 3. the bony prominences on either side of the spine 4. the heel and 5. ankle.[3]

If steps are not taken to heal those sores, the results can be serious. In addition to the pain and distress for the patient, decubitus ulcers can become severely infected and lead to bacteria in the blood stream, a serious condition or a bone infection.[4] Pressure sores lengthen hospital stays and take extra nursing time at considerable cost.

Treatment

Because decubitus ulcers are resistant to treatment and slow to heal, there have been many arguments about how best to treat them. Frequent changes in treatment lead to poor results. There are more than 130 creams and liquids available for treatment. None has proved to be a miracle cure for pressure sores. Dr. Walter Seiler and his research team have outlined a simple, effective five - step treatment plan that can eliminate inconsistent care.[5]

The first step is to relieve the pressure on the area of the sore. No healing can occur unless this is done. A patient who is confined to bed should be turned every 2 hours at least. A patient must not ever lie directly on the sore. Lying on the sore quickly cuts off the circulation and oxygen supply needed for healing. In severe cases an air-fluidized bed may be suggested by the physician. This type of bed is filled with tiny particles of soda lime glass which are blown around by warm air to "float" the patient in the bed and reduce pressure considerably.[6]

Once pressure has been eliminated, the next step is to remove dead tissue from the sore. This blackened tissue, called necrotic tissue, will not heal and provides a place for bacteria to grow. It can be removed surgically or by the application of an enzyme which dissolves the tissue. The removal procedure is known as debridement.

Step three is disinfection to remove most of the bacteria from the ulcer. When the body fights an invasion of bacteria, it uses up more oxygen at the site of infection. Lack of oxygen slows healing of the sore. Once the amount of bacteria in the sore is decreased (it is impossible to remove all bacteria), disinfection should be stopped since it slows the growth of new cells.

After disinfecting, the fourth step is to use a proper dressing. The covering should be moist, since new cells need

a moist environment to move into place and grow over the sore. The covering should also keep out bacteria and protect the sore from further damage from scraping or bumping the area. Seiler and his colleagues recommend gauze moistened with Ringer's solution (a salt solution with essential nutrients.)[7] Yarkony et. al. have done research which shows that a dressing such as Opsite or DuoDERM has very good healing results, is more comfortable, and requires less nurisng care.[8] Powders, pastes, or ointments are not useful in the treatment of pressure sores.[9]

Finally, physicians and caregivers should take steps to improve the patient's general health and remove risk factors. Risk factors include malnutrition, dehydration, and any condition which makes a patient less mobile.

As a last resort, surgery may be necessary to close the wound. Skin and muscle grafts have prove successful in many cases if care is followed up conscientiously.[10] Surgery is not the treatment of choice unless the decubitus ulcer is very severe. Physicians and institutional staff should do their utmost to prevent the ulcer from reaching the point where surgery is necessary.

The most important measure is the relief of pressure if decubitus ulcers are to heal. No treatment can replace regular changing of position. Elderly persons who spend a lot of time sitting should be encouraged to walk around if they can. Those confined to wheelchairs should be reminded to shift their weight from time to time. Patients in bed, must be repositioned at least every 2 hours. Without these measures, pressure sores can never be eliminated and will not be prevented.

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